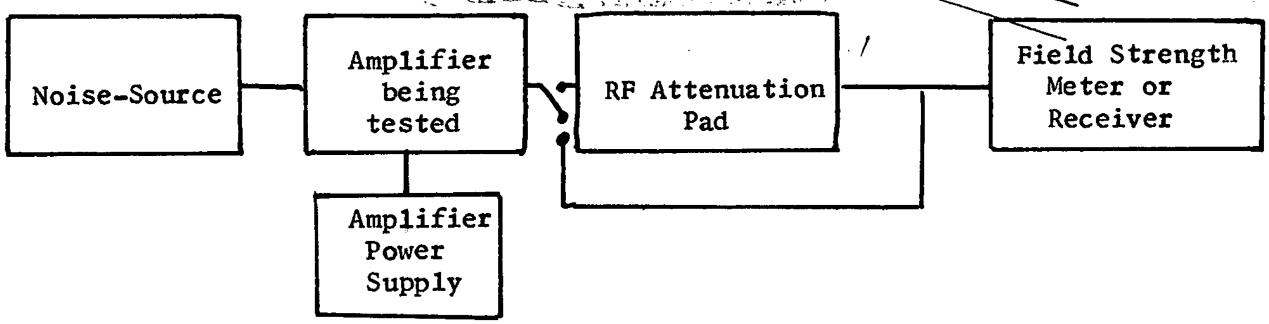
(RD)XG-1323 T.O.15

NOISE FIGURE MEASUREMENT



The noise figure of an amplifier may be measured by the following procedure:

1. With the noise source turned off and rated voltage on the amplifier being tested, obtain a convenient level on the field strength meter.

2. When a convenient level has been obtained on the field strength meter, insert 3 db of attenuation between the meter and the amplifier being measured. The field strength meter level should drop enough so that a noticeable difference is obtained. This can be adjusted by means of the field strength meter gain control.

3. Turn on the noise source and increase the output of the noise source until the meter level is the same as that obtained in step one. The noise figure is then read directly from the meter on the noise source.

4. With broadband amplifiers, the field strength meter or receiver used should be tuned to one frequency in the bandwidth of the amplifier.

Steps 1 to 3 are followed for any frequency of interest in the bandwidth of the amplifier.

5. In the event that the frequency range of the amplifier being measured is higher than that of the field strength meter being used, it will be necessary to use frequency range extension units. These may be placed between the amplifier and the RF attenuation pad. The field strength meter would then be tuned to the IF frequency of the range extension unit and the range extension unit would be swept through the frequency range of the amplifier.

The equipment used to make measurements on amplifiers from 50 mc to 500 mc was as follows:

1. Noise Source: Noise Source, New London Instrument Company, Model 403.
2. Amplifier Power Supply: Hewlett-Packard, Model 721A.
3. RF Attenuation Pad: Jerrold RF Attenuation Pad, Model AV-50.
4. Field Strength Meter: Jerrold Field Strength Meter, Model 704B.
5. Range Extension Units: Nems-Clark Range Extension Units, Types REU-100, REU-200.